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**REPORT ON INSECTS INTRODUCED BY MEANS OF THE
INTERNATIONAL EXHIBITION.**

On behalf of the Committee appointed by the Academy of Natural Sciences of Philadelphia, at the meeting held October 10, 1876, "to investigate and report upon the introduction of new species of insects and plants through the medium of foreign exhibits at the Centennial Exhibition," I have the honor to present the following report, with the desire that it may be forwarded to the proper authorities of the Centennial Commission, at whose instance the Committee was appointed.

The Committee is composed of the following members of the Academy:—

Dr. Joseph Leidy, Dr. George H. Horn, Mr. Thomas Meehan, Dr. J. Gibbons Hunt, and Dr. John L. Le Conte, Chairman.

It was apparent that while the labors of the botanists of the Committee could not properly commence until next spring, when careful observation will recognize any new introductions of plants, the entomological investigations should be made as speedily as possible. Accordingly, Dr. Horn and myself, availing ourselves of the admission cards which had, with great liberality, been sent to the members of the Committee, went frequently to the exhibits in the Main Building and Agricultural Hall, and made collections in all the agricultural products from foreign countries, which were found to be infected.

Most of the species which we obtained have been already distributed over the globe by the ordinary channels of trade, and nothing is to be apprehended from the addition of a few hundred thousand specimens, to the incalculable millions of individuals of the same kind, that we have now domiciled amongst us.

I am happy to add that the species found, which have not been previously observed in the United States, will be innocuous; they are dependent for their support upon plants which do not grow here, and which would be of no commercial value to us if they were cultivated.

I may therefore announce, with moderate certainty, that no evil result will occur to our agricultural interests, from any introduction of foreign insects, by means of the Centennial Exhibits.

Before concluding this report, by a list of the insects collected in the buildings, it is our duty to notice some remarkable differences between the exhibits from different countries, indicating the care with which the specimens had been prepared, and the means taken to prevent depredation by insects.

All those exhibits which had been moist when packed, or had become moist or mouldy on the voyage or during the Exhibition, abounded in *Bruchus*, *Calandra*, and *Tineidæ*; while those which were protected against moisture were unattacked. It stands to reason, in fact, that insects dependent on a circulating fluid for their vitality, and having, during their early stages as larvæ, a very soft and moist body, cannot obtain in properly dried grains the requisite amount of moisture for their sustenance, and the egg, if previously deposited, will remain, like an ungerminating seed, for a favorable moment to develop, or if hatched, the larva will die at an early stage.

It was, therefore, with great pleasure that we recognized the appreciation of this almost self-evident proposition by the Department of Agriculture of Portugal. The exhibits in bottles were entirely free from all mould and infection, and in each bottle was a small quantity of caustic lime,¹ wrapped in paper, which, by its hygrometric power, had kept the specimens perfectly dry.

We do not intend to have it inferred, from what is above stated, that all the other exhibits were in a condition inferior to that of Portugal; on the contrary, many of them, as well as many from our own States, were in most admirable order; but, so far as we could learn, this good condition had been produced by great personal care, and the removal from time to time of the infected parts; not by the use of a preventive agent.

While investigating the occurrence of a small species of *Tineide* in the Italian exhibit of Leghorn straw, I learned that some importations of straw goods, by Messrs. Albinola and Bailey, of New York, had been attacked by insects. I immediately wrote to those gentlemen, who, with great courtesy, sent me two collections of the insects infesting a recent importation which had become mouldy from being packed in a moist condition. The names of the species contained in this set are appended; they are all either carnivorous or fungivorous, and can therefore do no harm; some of them have

¹ The nature of the powder was suspected by the Committee, but the determination was made through the analysis of Mr. Edward Goldsmith.

not been before observed in the United States, or their habits have not been noted. What is more important, however, is that none of the straw goods were attacked by moths either on this or previous occasions. It is therefore to be inferred that the moth in the Italian exhibit was the grain-moth of the seed of the grass which produced the straw used in the manufacture of the Italian goods. What confirms this inference is that the moths occurred in but one case, in which were exhibited several bunches of the straw with the heads of grain still remaining.

Prof. C. V. Riley, in the Proceedings of the Academy of Science of St. Louis, Oct. 2, 1876, has given a list of the species which he collected at the Centennial Exhibition, with very useful and suggestive remarks. We have obtained specimens of all the species mentioned by him except one Crambide Lepidopteron, from the Egyptian exhibit, for which we sought without success. At an earlier period in the season, and with smaller attendance of visitors, the number of species in our list would perhaps have been larger, but no additional advantage would have been obtained therefrom. The species, with the few exceptions noted, are either innocuous or previously introduced.

J. L. LE CONTE, *Chairman*,
GEO. H. HORN,
JOSEPH LEIDY.

*List of Species collected in the Centennial Buildings in
Foreign Exhibits.*

COLEOPTERA.

Silvanus surinamensis.

Argentine Confederation and Brazil, in various materials.

Læmophlæus ferrugineus.

In beans, Brazil. These two species lived upon the debris of *Bruchus*, and were accompanied by a species of *Psocus*.

Bruchus picturatus, Fahræus.

Argentine Confederation; in seeds of two Leguminous plants, one of which produces a screw bean, resembling *Strombocarpus* of Arizona.

Bruchus, sp.

Allied to *B. prosopis*, of Arizona and New Mexico. Argentine Confederation; also in the screw bean. These two *Bruchi* are depredated upon by three small species of Ichneumonidæ.

Bruchus, sp.

Of larger size and more uniform color. Argentine Confederation, in the seeds of another Leguminous plant, allied to *Prosopis*.

Bruchus, sp.

Of larger size and more mottled color; in the seeds of three other Leguminous plants of the Argentine Confederation.

Bruchus scutellaris.

Venezuela, in beans.

Bruchus obsoletus.

In beans from various countries of both continents.

Bruchus pisi.

In peas; Spain and Portugal.

Bruchus, sp.

A small broad species, with transverse prothorax; ♂ rather uniformly clothed with gray-brown pubescence; antennæ as long as the body; ♀ black, with a grayish-brown broad dorsal stripe on the prothorax, and a small transverse white band on each elytron, extending from the side margin nearly to the suture, a little in front of the middle; thighs not toothed. Length .09 inch.

Brazil, in a bluish-gray variety of bean. I cannot identify this species among those described in Schönherr's work; it is of the same form, and belongs to the same division as *B. pisi*, but is much smaller, and quite different in other characters. It is the only one of the species here mentioned which is capable of being introduced; and I have, therefore, given such a description as will enable it to be recognized. The antennæ are only feebly serrate. This species is mentioned by Mr. Riley as *B. granarius*, but it does not agree with the figure of Olivier.

Rhizopertha pusilla.

Victoria, Australia; in wheat. This insect has been previously introduced into the United States in Persian wheat, distributed by the Patent office. (*Vide* Lec. Class, Col. N. Am. p. 208.)

Calandra oryzae.

This destructive insect abounded in exhibits of corn (maize), wheat, and rice from every part of the globe. I also observed it in arrowroot from Brazil.

Aræocerus coffæ.

Eating the thin shell of cacao-nuts from Brazil, but apparently not attacking the interior of the nut. Previously introduced both in the Atlantic and Pacific States.

LEPIDOPTERA.

The ordinary and well-known *Tineidæ*, which affect wheat and corn (maize) (*Butalis cerealella*, *Ephestia Zeæ*), abounded in exhibits from various countries. There was a smaller form which is mentioned above, as coming from the grass seeds of the Leghorn straw. Specimens have been identified by Prof. C. V. Riley as the common grain moth, *B. cerealella*.

HYMENOPTERA.

Besides the three *Ichneumonidæ* parasitic on the *Bruchi* in the Argentine Confederation exhibit, I observed a small species of *Pteromalus* parasitic on the *Tinea*, *Bruchus obsoletus*, or *Calandra oryza* which infested a small bag of Brazilian wheat.

*List of the Species found in Mouldy Specimens of Straw
Goods from Italy.*

These species were collected by Messrs. Albinola and Bailey, in New York. They are either carnivorous or fungivorous; those of the latter kind live upon the mould, which, as determined by Dr. J. G. Hunt, is a species of *Aspergillus*, previously known in this country.

Lathridius filiformis.

Lathridius striatus.

Corticaria, sp.

(Not identified.)

Holoparamesus singularis.

Has not been previously observed in the United States.

Silvanus surinamensis.

Silvanus advena.

Læmophlæus ferrugineus.

Murmidiæ ovalis.

Habits not previously observed in the United States, though its occurrence was known.

Tribolium ferrugineum.